PMCT TRAINING CURRICULUM

Module 1

MOTHER-TO-CHILD TRANSMISSION OF HIV: EPIDEMIOLOGY AND PREVENTION STRATEGIES

by
Dr Dorothy Mbiri-Ngacha

with
Dr Ruth Nduati
Module 1

Unit 1  Epidemiology of mother-to-child transmission of HIV  5

Unit 2  Prevention of mother-to-child transmission of HIV  19

Unit 3  Integrating the prevention of mother-to-child transmission of HIV into existing maternal and child health services  31

Unit 4  Care of children born to HIV-infected mothers  51

Annex  45
Unit 1

Epidemiology of mother-to-child transmission of HIV

by
Dr Dorothy Mbori-Ngacha

with
Dr Ruth Nduati
CONTENTS

Objectives 7

HIV status worldwide 7

HIV/AIDS pyramid in Kenya 8

Pregnant women testing positive in Kenyan urban centres 8

Modes of transmitting HIV 9

Mother-to-child transmission of HIV 9

Viraemia and antibodies during the course of HIV infection 10

Maternal and infant risk factors for MTCT of HIV 11

Delivery-related risk factors for MTCT of HIV 11

Breast milk transmission of HIV 12

Summary 12

Overhead transparency key 14
Epidemiology of mother-to-child transmission of HIV

This unit presents current information on the epidemiology of mother-to-child transmission (MTCT) of HIV. It presents the risk factors for MTCT, which suggest possible ways to intervene to prevent it.

Objectives

At the end of this unit participants should be able to

⇒ describe the epidemiology of HIV globally, in sub-Saharan Africa and Kenya
⇒ describe the epidemiology of HIV in pregnant women in sub-Saharan Africa with emphasis on Kenya
⇒ describe the modes of transmission from an infected pregnant woman to her infant
⇒ discuss the risk factors for mother-to-child transmission of HIV

The key message is that MTCT of HIV is a major public health problem in Kenya.

Use the ‘Epidemiology’ set of transparencies to present the information for this session. Use the transparency at the point indicated in the text with a flag, title and number.

HIV status worldwide

This overhead transparency shows data on the magnitude of the problem of HIV/AIDS globally. Make the points that follow.

The epidemic of HIV and AIDS has become a major problem in many countries globally. The overwhelming majority of HIV-infected people, more than 90%, live in the developing world and most of them do not even know
that they are infected. Two in every three persons living with HIV/AIDS live in sub-Saharan Africa. Adults living in sub-Saharan Africa are 10 times more likely to be infected with HIV than adults in North America and 20 times more likely than adults in Western Europe. Of every 10 women currently living with HIV, 8 are in sub-Saharan Africa. And of all the children born with HIV globally, 9 in every 10 are in this region.

HIV/AIDS pyramid in Kenya

This transparency illustrates the magnitude of HIV/AIDS presence in Kenya. Use the pyramid to make the point that the number of reported AIDS cases grossly understates the problem.

As of June 1999, AIDS cases that had been reported numbered 87,070. The National AIDS Control Programme estimates that the actual number of AIDS cases was 760,000 and that an additional 1.9 million people had HIV infection, including 106,000 children under the age of 5.

According to the latest estimates, 13 to 14% of all adults in Kenya are infected with HIV. About 200,000 people will become newly infected with HIV this year.

The epidemiology of HIV in pregnant women

In Kenya, the proportion of women attending antenatal clinics who have HIV infection has continued to increase in all districts. The rapid spread of HIV means that no district in Kenya can be complacent about AIDS.

Pregnant women testing positive in Kenyan urban centres

This transparency presents current data from the National AIDS Control Programme on the prevalence of HIV in Kenya.

This information is obtained from surveillance in selected rural and urban centres and is updated regularly. Highlight data from various regions in the country before discussing the magnitude of the problem in the district where you are conducting the course.
Modes of transmitting HIV

Heterosexual contact

Heterosexual contact is the main mode by which HIV is transmitted in Kenya and other parts of sub-Saharan Africa. The risk of infection increases substantially if either partner has a large number of sexual partners or has a sexually transmitted disease.

Perinatal transmission

A woman is usually infected by her sexual partner. She in turn, if she becomes pregnant, can pass on the infection to her child—during pregnancy, or at time of birth or through breastfeeding.

This is termed mother-to-child transmission of HIV.

Most children with HIV have acquired the infection from their mothers—during the mother’s pregnancy, at the time of delivery or through breastfeeding.

Ask the participants to estimate how commonly they think that MTCT of HIV occurs.

The proportion of HIV-infected women who pass on the infection to their infants varies but generally ranges from 30 to 40% in sub-Saharan Africa. In Kenya, current estimates are that 106,000 children under the age of 5 years are infected with HIV.

Blood transfusion

Transfusion with blood from an individual with HIV will invariably transmit the virus. In Kenya, this mode of transmission is not significant because almost 100% of the blood is screened for HIV before it is transfused.

Mother-to-child transmission of HIV

Present a case scenario using local statistics to highlight the magnitude of the problem of MTCT of HIV. Ask the participants to fill in the blanks in the scenario presented below:
The prevalence of HIV infection in women who attend antenatal clinic in this district is estimated as _____. Refer to table 1.1.1 below.

Given that 30 to 40% of HIV-infected women transmit the virus to their babies, _______infants born in this district may become infected with HIV.

Risk factors for mother-to-child transmission of HIV

Maternal and infant factors

Not all pregnant women who have HIV transmit the virus to their infants. But women with high concentrations of the virus in their bodies are more likely to transmit it.

Viraemia and antibodies during the course of HIV infection

Although a person infected with HIV feels well at first, the amount of virus in the body is highest soon after the person acquires the infection. The body is then able to fight the virus and bring the level down, and the person may

Table 1.1.1
Percentage of pregnant women testing HIV positive by sentinel site (urban)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Busia</td>
<td>17</td>
<td>22</td>
<td>28</td>
<td>29</td>
</tr>
<tr>
<td>Garissa</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Kakamega</td>
<td>5</td>
<td>9</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Kisii</td>
<td>2</td>
<td>2</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Kismu</td>
<td>19</td>
<td>20</td>
<td>27</td>
<td>29</td>
</tr>
<tr>
<td>Kitale</td>
<td>3</td>
<td>7</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Kitui</td>
<td>1</td>
<td>7</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Meru</td>
<td>3</td>
<td>2</td>
<td>15</td>
<td>23</td>
</tr>
<tr>
<td>Mombasa</td>
<td>10</td>
<td>16</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>Nairobi</td>
<td>6</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Nakuru</td>
<td>10</td>
<td>22</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>Nyeri</td>
<td>3</td>
<td>3</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>Thika</td>
<td>2</td>
<td>27</td>
<td>13</td>
<td>34</td>
</tr>
</tbody>
</table>
remain healthy for many years. But the virus slowly destroys the immune cells, which protect against illness. The result is a state of immunosuppression. With time, the body becomes less able to fight infections and the infected person develops AIDS. During these final stages of the disease, the amount of virus in the blood is again very high. Therefore, pregnant women who have just recently acquired the virus and those who have progressed from HIV infection to AIDS are more likely to transmit the virus to their infants. Laboratory tests can quantify the amount of virus (viral load) and can evaluate the degree of immunosuppression (CD4 counts).

Maternal and infant risk factors for MTCT of HIV

The transparency and the list below give other factors that increase the risk of MTCT of HIV.

- Maternal nutritional status has been noted to play a role in MTCT of HIV. Vitamin A deficiency in HIV-infected women increases the likelihood that they will transmit the virus to their infants.
- Infections of the placenta and cord are associated with increased MTCT of HIV. These infections, such as sexually transmitted infections (STIs) and malaria, reduce the effectiveness of the placental barrier against foetal infections.
- Premature delivery has also been associated with increased risk of MTCT of HIV. Prematurity may be a consequence of infections such as STIs and malaria or may be due to poor maternal nutritional status.

Delivery-related factors

Most mother-to-child transmission of HIV occurs during delivery. The factors listed on the transparency are now known to increase the risk of that transmission.

Delivery-related risk factors for MTCT of HIV

Exposure of the infant to maternal blood and secretions during delivery, either through invasive procedures or through prolonged rupture of amniotic membranes, puts an infant at a higher risk of acquiring the infection from its mother.
Breast-milk transmission of HIV

- Breast-milk transmission of HIV can take place at any point during lactation. Most transmission takes place in the first 6 weeks of the infant’s life. However, prolonged breastfeeding increases the risk of transmitting HIV.

- Oral disease in a breastfeeding infant such as thrush and oral ulcers increases the risk of transmitting HIV through breastfeeding, because mouth sores or thrush in the infant make it easier for the virus to get into the baby through the damaged skin.

- Breast disease in the mother such as cracked nipples, particularly if there is nipple bleeding, mastitis or breast abscess, may increase the risk of HIV transmission through breastfeeding.

Group work

Turn off the projector, place the participants in small groups of four or five each, and undertake the following exercise for 30 minutes. Then have each group make a 5-minute presentation of its work.

**Group work:** Based on the information presented in this session, design a package to prevent MTCT that you can use in your district hospital.

Then make the following concluding remarks.

This session highlights the magnitude of the problem of MTCT and the associated risk factors. With the group work, you have started to outline possible interventions.

Summary

HIV infection rates in Kenya are high, about 14% among all adults and over 20% in pregnant women in some areas of Kenya. Risk factors for MTCT include

⇒ mother’s stage of disease
⇒ presence of STIs, malaria, vitamin deficiencies
⇒ delivery practices
⇒ breastfeeding
However, specific interventions can reduce the rate of mother-to-child transmission.

Unit 2, Prevention of mother-to-child transmission of HIV, gives a more detailed discussion on the interventions to prevent MTCT of HIV.
HIV status worldwide end 1999

- 50 million worldwide had been infected since the beginning of the epidemic
- 33 million were living with HIV
- 5.6 million new HIV cases estimated in 1999
- 22.5 million in Africa were living with HIV
- In Africa, for every 5 men with HIV, there were 6 women who were HIV positive, aged 15 to 49
Modes of transmitting HIV

- Heterosexual contact
- Perinatal transmission
- Blood transfusion

HIV can be passed from an infected woman to her child during pregnancy, or at time of birth, or through breastfeeding. This is mother-to-child transmission of HIV.

Mother-to-child transmission of HIV

- What is the prevalence of HIV infection in women attending antenatal clinic in this district?
- Given that 30 to 40% of HIV-infected women transmit the virus to their infants, how many infants born in this district may become infected with HIV?

Viraemia and antibodies during the course of HIV infection
Maternal and infant risk factors for MTCT of HIV

- Viral load
- Immunosuppression
- Vitamin A deficiency
- STDs
- Malaria
- Prematurity
- First-born twin

Delivery-related risk factors for MTCT of HIV

- The mode of delivery
- Prolonged rupture of amniotic membranes
- Episiotomy
- Invasive foetal monitoring

Factors influencing breast-milk transmission of HIV

- Prolonged breastfeeding
- Oral disease in the infant, such as thrush and oral ulcers
- Breast disease, such as cracked nipples and mastitis
Summary: epidemiology of mother-to-child transmission

- HIV infection rates in Kenya are very high, at about 14% among all adults, and over 20% in pregnant women in some areas of Kenya.

- Risk factors for MTCT include:
  - mother’s stage of disease
  - presence of STIs, malaria, vitamin deficiencies
  - delivery practices
  - breastfeeding

- Specific interventions can reduce the rate of mother-to-child transmission.
Unit 2

Prevention of mother-to-child transmission of HIV

by
Dr Dorothy Mbori-Ngacha

with
Dr Ruth Nduati
CONTENTS

Objectives 21

Introduction 21

Primary prevention of HIV infection in infants 21

Antenatal interventions 22

Long-course AZT 22

Thai short-course AZT regimen 22

Other drug regimens 23

Interventions during labour and delivery 23

Ways to prevent transmitting HIV with breast milk 23

Caesarean section 24

The essential package for preventing MTCT 25

Summary 25

Overhead transparency key 26
Prevention of mother-to-child transmission of HIV

This unit presents current information on the mother-to-child transmission (MTCT) of HIV with an emphasis on practical and workable intervention strategies.

Use the ‘Prevention’ set of transparencies to present the information for this session. Use the transparency at the point indicated in the text with a flag 21, title and number.

Objectives

At the end of this unit participants should be able to discuss possible interventions for preventing mother-to-child transmission of HIV.

The key message is that although MTCT of HIV is a major public health problem, interventions can be used to reduce transmission.

Introduction

It is possible to prevent HIV transmission from mother to child.

It is important to remember that the best way to prevent infection of children is to help their fathers and mothers avoid becoming infected in the first place, and to avoid infecting each other. Men must not forget their responsibility for protecting their families.

Primary prevention of HIV infection in infants

- However, many women are already infected, and it is necessary to try to reduce the risk of their babies becoming infected.
- Some interventions will benefit all pregnant women, and a woman’s knowledge of her HIV status is not necessary to implement them.
Some of the interventions specifically target women with known HIV status and therefore require antenatal HIV testing.

Antenatal interventions

- Improve maternal health and nutritional status during pregnancy by routine supplementation with haematinics and multivitamins.
- Screen and treat STIs in pregnant women.
- Administer malaria chemoprophylaxis in malaria-endemic areas.
- Reduce maternal viral load by using currently recommended regimens of antiretroviral drugs.

Long-course AZT

Antiretroviral regimens

Show the currently recommended regimens on the overhead transparency and review each regimen.

- Various regimens of antiretroviral drugs during pregnancy and peripartum have been shown to be effective in reducing MTCT in various degrees.
- The choice of regimen will be determined by the cost, the feasibility of administration, the period of gestation at which a woman first comes to the antenatal clinic and her ability to tolerate the medication and comply with the regimen for it.

Thai short-course AZT regimen

Most information currently available is on the use of AZT. The Thai regimen of AZT has been demonstrated to be effective, reducing MTCT by half.
Other drug regimens

- One dose of Nevirapine for the mother and one for the baby has been shown in Uganda to reduce MTCT by 40%.
- The recommendation for the choice of antiretroviral drug will continue to change as more information becomes available. It will therefore be necessary for health workers to keep updated.
- It is important to note that antiretroviral drugs used in pregnancy to prevent MTCT do NOT treat the mother.

Interventions during labour and delivery

- Minimize the contact of the infant with maternal blood and secretions by preventing prolonged rupture of membranes.
- Use invasive procedures minimally and judiciously. These procedures include amniocentesis, cordiocentesis or taking a sample from the placenta; artificial rupture of the membranes; blood transfusion. Also make minimal use of procedures that lead to exposure to maternal blood, such as episiotomy, vacuum delivery, forceps delivery or neonatal suction.
- Vaginal cleansing with 0.25% chlorhexidine solution reduces the risk of neonatal and puerperal sepsis and may also have an effect in reducing HIV transmission to the infant, particularly where rupture of the membranes has been prolonged. (The use of vaginal cleansing with an antiseptic solution is being researched in some places to reduce MTCT.)

Ways to prevent transmitting HIV with breast milk

A detailed discussion on this topic is undertaken in module 3, ‘Child nutrition’, in unit 3, ‘Infant feeding choices for the HIV-infected mother’.

Breast-milk transmission of HIV

- Breastfeeding is the optimum form of infant nutrition and should continue to be protected, promoted and supported.
- However, HIV can be transmitted through breastfeeding.
• HIV can be transmitted at any time during breastfeeding, so babies of HIV-positive mothers who breastfeed for 2 years or more are more likely to be infected with HIV than babies who either do not breastfeed at all or who stop breastfeeding after a few months.

• Women who are known to be HIV positive will need counseling on infant feeding, to help them to make the best decision in their given circumstances. Whatever decisions an HIV-infected woman makes, she needs support to carry them out.

• The feeding options available to HIV-infected women include avoiding using breast milk completely by using replacement feeds such as infant formula, modified cow’s milk, or soy milk; or reducing the risk of breast-milk transmission by
  ⇒ reducing the duration of breastfeeding
  ⇒ avoiding breastfeeding when a woman has breast disease, such as mastitis or cracked nipples
  ⇒ aggressively treating oral thrush in breastfeeding infants

😊 Make an additional point about caesarean section, as follows.

**Caesarean section**

You may have heard that delivery by caesarean section may reduce the chances of a mother transmitting the virus to her infant. The use of elective caesarean section has been demonstrated to reduce the risk of MTCT in industrialized countries. This intervention has not been evaluated in settings such as prevail in sub-Saharan Africa. It is currently not clear whether this is a feasible intervention in these settings.

👩‍⚕️ Turn off the projector and undertake the following exercise:

**Group work**

Divide the participants into two groups.

**Group 1**

Have participants conduct a role-play of a worker giving a health talk to a group of women attending an antenatal clinic on the benefits of HIV testing.
Group 2

Have participants conduct a role-play of a health worker giving a talk to a group of women attending an antenatal clinic on the interventions to prevent mother-to-child transmission of HIV.

After the role-plays, summarize the group work using the following points:

- If no intervention is carried out, about one in three babies born to HIV-positive women will become infected.
- Mother-to-child transmission of HIV is affected by a number of factors. Knowledge of these factors suggests various ways in which the risk can be reduced.
- Knowledge of a woman’s HIV infection status through voluntary counseling and testing is an important entry point in preventing mother-to-child transmission of HIV, since there are specific interventions that an HIV-infected woman can request to improve her and her baby’s well-being.

The essential package for preventing MTCT

Review the components of the essential package of care for the prevention of MTCT, indicating the components of the package that require knowledge of a woman’s HIV status and those that do not.

Summary

This session has presented the components of an essential package for the prevention of mother-to-child transmission:

- Prevent HIV infection in young women.
- Provide family planning counseling for HIV+ women and improved antenatal clinic services for all women.
- Use antiretroviral drugs in the antenatal period.
- Cleanse vagina with 0.25% chlorhexidine solution during labour.
- Avoid invasive procedures during labour and delivery.
- Counsel about avoiding exposure to breast milk.
Primary prevention of HIV infection in infants

- Intensify efforts to prevent HIV infection in young women
- Promote voluntary counseling and testing before marriage and before pregnancy
- Promote condom use during pregnancy to prevent infection with HIV and other STIs
- Ensure that HIV+ women have access to family planning counseling and services

Antenatal interventions

- Routinely supplement with haematinics and multivitamins
- Screen and treat STDs in pregnant women
- Provide malaria chemoprophylaxis in malaria-endemic areas
- Reduce maternal viral load using currently recommended regimens of antiretroviral drugs

Long-course AZT

- During pregnancy—300 mg orally b.d. starting at 14 to 34 weeks
- For mother during labour—2 mg per kg IV for first hour then 1 mg per kg IV until delivery
- For baby—2 mg per kg AZT syrup every 6 hours for 6 weeks
**Thai short-course AZT regimen**

- Give Zidovudine (AZT) 300 mg twice daily from 36 weeks of gestation
- With the onset of labour, give Zidovudine 300 mg every 3 hours until delivery

**Other drug regimens**

- Nevirapine
  - 200 mg orally during labour
  - 2mg/kg syrup for baby within 72 hours
- Ditrame AZT regimen
  - 600 mg o.d. starting at 36 to 38 weeks
  - 600 mg stat at onset of labour
  - 600 mg o.d. for 1 week post-natal (mother)
  - no treatment of baby

**Interventions during labour and delivery**

- Prevent prolonged rupture of membranes
- Minimize use of invasive procedures—episiotomy, vacuum delivery, forceps delivery or neonatal suction
- Cleanse vagina with 0.25% chlorhexidine solution
Ways to prevent breast-milk transmission of HIV

- Avoid breast-milk feeding completely or
- If the woman opts to breastfeed—
  - Encourage exclusive breastfeeding with abrupt weaning and avoid mixed feeding
  - Reduce the duration of breastfeeding
  - Avoid breastfeeding when the mother has breast disease—mastitis or cracked nipples
  - Aggressively treat oral thrush or ulcers in the baby

The essential package for preventing MTCT

- Prevent HIV infection in young women
- Provide FP counseling for HIV+ women
- Improve maternal health and nutritional status during pregnancy
- Screen for STDs in pregnant women and treat them
- Use malaria chemoprophylaxis in malaria-endemic areas

The essential package . . .

- Use antiretroviral drugs in the antenatal period
- Cleanse vagina with 0.25% chlorhexidine solution during labour
- Avoid invasive procedures during labour and delivery
- Counsel about avoiding breast milk
Summary: Prevention of mother-to-child HIV transmission

- Prevent HIV infection in young women
- Promote VCT before pregnancy
- Improve antenatal care for all women
- Modify labour and delivery practices
- Introduce specific interventions for HIV+ women
Unit 3

Integrating the prevention of mother-to-child transmission of HIV into existing maternal and child health services

by
Dr Dorothy Mbori-Ngacha

with
Dr Omondi Ogutu
CONTENTS

Introduction 33
Objectives 33
Voluntary counseling and testing 33
Definition of VCT 34
HIV testing strategies 34
Rapid HIV testing strategies 34
Testing infants 35
Clinical diagnostic criteria for HIV infection in children 36
Integrating PMCT into MCH care 38
National STI syndromic management guidelines 39
Family planning and protection against STDs 39
Family planning for the HIV-positive woman 40
Universal precautions 41
Needs of the HIV-infected woman 42
Tuberculosis 43
Summary 44
Annex 45
Overhead transparency key 47
Integrating the prevention of mother-to-child transmission of HIV into existing maternal and child health services

Introduction

This unit deals with ways in which the strategies for preventing mother-to-child transmission of HIV can be integrated into existing maternal and child health (MCH) services.

Use the ‘Integrating’ set of transparencies to present the information for this session. Use the transparency at the point indicated in the text with a flag 22222, title and number.

Objectives

At the end of this unit, participants should be able to

⇒ outline the principles of voluntary counseling and testing for HIV

⇒ discuss how the prevention of mother-to-child transmission of HIV can be integrated into existing maternal and child health care

Voluntary counseling and testing

With voluntary counseling and HIV testing, we can identify women who are HIV positive, to offer them help for their condition, to counsel them about prevention of sexual transmission of HIV, and to reduce the risk of MTCT. Maternal and child health services are an entry point for VCT.
Definition of VCT

The testing also identifies women uninfected by HIV, who can then be given information that will help them to remain uninfected.

A detailed discussion of the principles and practice of VCT will be undertaken in module 4, ‘Counseling skills for the prevention of mother-to-child transmission of HIV’.

Testing for HIV

The routine HIV tests detect the presence of antibodies to the human immunodeficiency virus in a person’s blood. A positive result shows that the person is infected with HIV but does not indicate how long the person has been infected or the stage of the disease.

Machine-read ELISA testing is done in many hospital laboratories, but the use of rapid HIV tests is increasing. Both machine-read ELISA tests and rapid tests are antibody based; that is, they detect the presence of antibodies that the body of an HIV-infected person makes in response to the infection.

HIV testing strategies

Machine-read ELISA testing

• Is done in batches of blood samples so individual samples cannot be tested.
• Requires serum so a venous sample must be drawn and then centrifuged.
• Is slower; it can take a few days to 2 weeks to get the test result.
• Needs specially trained staff and must be done in a centralized laboratory.
• May be cheaper if a number of blood samples are tested at the same time.
• Requires electricity for centrifuging and to run the tests.

Rapid HIV testing strategies

• Can be done at the antenatal clinic or VCT centre whenever the woman comes in.
• Batching of samples is usually not required.
• Is quick, with results available the same day.
• Does not require skilled staff or laboratory equipment.

Whole blood versus serum-based rapid tests

Rapid tests in the past required the use of serum, so a venous sample was required. The latest generation of rapid tests can use whole blood, so only a fingerprick sample is needed. These tests are usually simple to perform, and results are available within minutes. No electricity is needed since there is no centrifuging. These tests are just as accurate as the machine-read ELISA testing, and their use is increasing in Africa and throughout the world. Not many are yet available in Kenya, but they will become more readily available in the future. Rapid tests using oral mucosal samples are also becoming more and more accurate and will gradually become more available in Africa and in Kenya.

Whether the testing is done using machine-read ELISA tests or rapid tests, all positive results must be confirmed with a second test. This test should be different from the first test to reduce the chance of false results. Rapid tests can be confirmed immediately with a second, different rapid test.

Testing infants

The mother’s antibodies pass through the placenta, and if a mother is HIV positive the baby will test positive because of the presence of the mother’s antibodies, even if the baby is not infected with HIV.

The maternal antibodies start to disappear after the baby is 6 months old. Any time after that, the child may test negative, and this means that the child is not infected.

However, the mother’s antibodies may remain up to 18 months. If a child tests positive before 18 months, you cannot be sure what it means, as it may reflect only the presence of the mother’s antibodies and the child may not be infected. However, if the test is positive after 18 months of age, then it means that the child is infected.

It is possible to test for the HIV virus itself in young babies by more complicated and expensive tests such as PCR, P24 antigen testing or viral cultures. However, these tests are not reliable until a baby is at least 2 weeks old. These tests are not available in Kenya except in research settings.
When you counsel mothers soon after their babies are born, you assume that the babies are probably not infected. Only a small number of infants are infected with HIV at birth. It is difficult to know which ones they are, and at present we do not have specific treatment to offer them. If an infant is uninfected, it may be possible to reduce the risk of both HIV and other illnesses by appropriate counseling on infant feeding. So the best thing is to offer this help to all HIV+ mothers of newly born infants.

When testing is not available

HIV testing may not be available everywhere. A woman may be worried about HIV and aware of mother-to-child transmission, and in particular of transmission through breastfeeding. It is essential to advocate for availability of HIV testing to help reduce MTCT, and pregnant women who are very worried about HIV infection should be referred to a site where testing is available.

Clinical diagnostic criteria for HIV infection in children

Clinical criteria may be used to evaluate a child for HIV infection. These criteria were initially developed for surveillance purposes and therefore have limitations in identifying HIV-infected children, because most of the conditions that HIV-infected children manifest are also commonly seen in children uninfected with HIV.

-review the WHO diagnostic criteria with the participants.

WHO clinical case definition for paediatric HIV disease

Major criteria
- weight loss or failure to thrive
- diarrhoea for more than 1 month
- fever for more than 1 month
Minor criteria

⇒ generalized lymphadenopathy
⇒ persistent or recurrent oral thrush
⇒ repeated common infections
⇒ cough for more than 1 month
⇒ generalized dermatitis
⇒ confirmed HIV infection in the mother

HIV infection should be suspected in a child with two major and two minor clinical features from the above list. The problem with the WHO clinical case definition for children is that other chronic problems may have clinical presentations similar to those listed above. It is important to think of HIV disease in a child who gets recurrent bacterial infections or fails to thrive despite adequate nutritional support.

If a mother does not know her HIV status, it is safer for her to breastfeed. When she is counseled about infant feeding, she needs reassurance that breastfeeding is the safest option for her. An exception could be if she has definite clinical AIDS.

In the previous unit we discussed the importance of voluntary counseling and HIV testing to identify women who are HIV positive, so that they can be offered help for their condition and to reduce the risk of mother-to-child transmission. Maternal and child health services are an entry point for VCT.

Some interventions to reduce mother-to-child transmission are advisable only for women who have been tested and know they are HIV positive. These include giving antiretroviral drugs in pregnancy and avoiding breastfeeding.

However, some practices that help to reduce MTCT can safely be provided for all women and do not require testing or identifying a woman as HIV positive. These practices include improved maternal nutrition, restricting the use of invasive obstetric procedures such as routine episiotomy, and good breastfeeding techniques to avoid the breasts becoming engorged, the nipples cracking, or mastitis.

Let us now consider all the places where practices to prevent MTCT need to be integrated into MCH care.
Integrating PMCT into MCH care

Health education

Health education for both men and women is important for primary prevention of HIV. It is the most important way to prevent their children from becoming infected. Prevention is particularly important for young women and for women during pregnancy and during lactation.

Health education should

⇒ provide information on HIV transmission
⇒ encourage safer sex practices and facilitate access to condoms
⇒ promote voluntary counseling and HIV testing for both men and women, especially before marriage and before pregnancy

Treatment of sexually transmitted infections

Write key points of the clinical features of sexually transmitted infections (STIs) on a flip chart under the headings ‘genital ulcer disease’, ‘genital discharge’, ‘lower abdominal pain’, ‘other STIs’. Ask the participants to name the clinical features and aetiology of STIs that fall under each of these sections. Refer to the Ministry of Health chart on the management of STIs.

Early diagnosis and treatment of sexually transmitted disease is important in preventing HIV transmission between adults. It may be necessary before, during or after pregnancy. Treatment of STIs during pregnancy may reduce the risk of transmitting infection to the infant. Routine syphilis testing of pregnant women is an essential component of good antenatal care, and all antenatal women should be tested for syphilis and treated if infected.

Asymptomatic infection is more common in women than in men. This is particularly true during pregnancy. In addition, women often do not recognize the symptoms associated with an STI. Therefore, at each antenatal visit women should be directly asked about any symptoms that might indicate STIs, such as lower abdominal pain, abnormal vaginal discharge or genital ulcers. If the facilities allow, a genital examination with appropriate laboratory investigation should be conducted for each woman at her first antenatal visit and at any time she reports complaints that suggest an STI.
If laboratory tests are not possible, a syndromic diagnosis can be made and treatment given using the Ministry of Health guidelines.

National STI syndromic management guidelines

Show transparencies and review the national STI syndromic management guidelines, syndrome by syndrome.

The key principles of STI management are

⇒ correct diagnosis
⇒ effective treatment
⇒ education on risk reduction and prevention
⇒ promotion and provision of condoms
⇒ partner notification and treatment

Family planning and protection against STDs

Condoms are an effective way to reduce the risk of sexual transmission of HIV. Condoms reduce the risk of becoming infected with HIV, particularly if they are used correctly all the time. Using condoms also reduces the risk of becoming infected with other STIs. Even women who are using oral, implantable or injectable contraceptives should be advised to use condoms with every sexual act. Pregnant women should also be encouraged to use condoms to prevent infection with STIs, including HIV. Condoms can be provided through family planning services, for both HIV-negative and HIV-positive men and women.

HIV-positive women need help to prevent unwanted pregnancies, and their needs should be addressed along with those of women who are HIV negative. Health-care staff should make adequate, accurate information available, but family-planning decisions should be completely voluntary.

The best method of contraception is one that will actually be used—correctly and consistently.
Ask the group to discuss the family planning options available to HIV-positive women. Explore with participants what they view as contraindications for using any particular contraceptive method. Write responses on a flip chart.

Family planning for the HIV-positive woman

There are no contraindications for an HIV-infected woman for using any of the available contraceptives. Women known to be infected with HIV may safely use IUDs if they have continued access to medical care and are in a stable, mutually monogamous relationship. However, women who are at risk of STIs, especially adolescents, should avoid using IUDs.

Suitable family planning methods need to be discussed with HIV-positive women who have chosen not to breastfeed. A non-lactating woman can become pregnant before her first menstrual period after childbirth. Using a reliable birth control method within 2 or 3 weeks of delivery is therefore highly recommended to avoid an unwanted pregnancy.

Back-up contraception is advisable if a woman is using certain medications, such as rifampin, or any anticonvulsant medication other than valproic acid; if she has severe diarrhoea; or if she is taking a broad-spectrum antibiotic such as ampicillin or tetracycline.

Antenatal care

Ask the participants to discuss what new services they should introduce in their antenatal clinics to help prevent MTCT of HIV.

Have them write their responses on a flip chart.

Routine antenatal care should include nutrition supplementation with iron, folic acid supplementation and vitamin A (not more than 20,000 IU).

Antenatal group education should include information about HIV, the importance of staying negative, and individual counseling and referral for VCT.
Information about benefits and management of breastfeeding should include individual infant feeding counseling for women who are worried about their HIV status or who know they are HIV positive. In some situations, a woman may be offered antiretroviral drugs to take at the end of pregnancy and at the time of delivery.

Delivery and postpartum care

Ask the participants to indicate ways in which they can modify their delivery practices and postnatal care to help prevent MTCT of HIV.

Write responses on a flip chart.

During delivery all women need

- a skilled attendant present
- minimal use of invasive procedures, such as episiotomy
- their health worker to use universal precautions

Universal precautions

Universal precautions are protective measures taken to ensure that no pathogens are transmitted through body fluids from patient to patient, patient to health worker, or health worker to patient. These protective measures should be applied universally to all patients. Their body fluids and discharges should all be treated with the assumption that they are potentially infected.

Postpartum care for the mother

After giving birth, all women need general postpartum care, including good nutritional support. A detailed discussion on maternal nutrition is undertaken in module 2 unit 2, ‘Antenatal preparation for lactation’.

Women who are HIV positive and not breastfeeding need advice and support for alternative feeding from birth. They may need help while their milk supply is drying up. They need family planning advice early. Women who are HIV negative or untested need support to prevent HIV and encouragement and support to breastfeed exclusively, using good technique. A woman who has an HIV test while in hospital needs counseling before and after the test. If positive,
she needs time to discuss and consider her infant feeding options.

A detailed discussion of this topic is undertaken in module 3 unit 3, ‘Infant-feeding choices for the HIV-infected mother’.

Care of the HIV-infected woman

Women identified to be HIV infected during pregnancy will need ongoing care and support.

Needs of the HIV-infected woman

Health workers need to have a holistic approach to caring for HIV-positive women. They will need to involve other professionals to get the best care possible for their clients. Important areas that need to be addressed when caring for HIV-infected women include

⇒ emotional and psychological support through ongoing counseling
⇒ adequate nutrition
⇒ adequate rest
⇒ prompt medical attention for illness
⇒ a positive mental attitude
⇒ support in dealing with stigma
⇒ planning for the future
⇒ legal support

These women may need medical intervention to improve their quality of life and prolong their survival. Interventions might include prophylaxis against opportunistic infections. HIV-infected women who have suffered from several infections or who have clinical AIDS may benefit from prophylaxis with cotrimoxazole (Septrin). Likewise, HIV-infected women who have a positive tuberculin test with no evidence of active tuberculosis may benefit from prophylaxis with isoniazid.

Another intervention might be immunization. HIV-infected individuals may benefit from immunization with some of the vaccines that are not yet in the EPI (extended programme of immunization) schedule, such as *Haemophilus influenzae* type B vaccine (HiB).
Combinations of antiretroviral drugs have also been demonstrated to improve the survival of HIV-infected individuals. Their main limitations are their cost and the side effects they cause. Most women in sub-Saharan Africa do not have access to these medications. It is important to note that antiretroviral drugs used in pregnancy to prevent MTCT do not treat the mother.

Tuberculosis

In the context of the dual epidemic of tuberculosis and HIV, it is becoming increasingly common to see tuberculosis in women attending MCH clinics.

A person infected with HIV is 10 times more likely to develop TB than a person who is HIV negative. HIV seroprevalence among TB patients in sub-Saharan Africa may be as much as 70%.

Diagnosis

A diagnosis of tuberculosis should be considered in any woman presenting to the MCH services with

⇒ cough that has lasted longer than 3 weeks
⇒ sputum production
⇒ weight loss

Additional signs that suggest TB include

⇒ fever and night sweats
⇒ haemoptysis
⇒ chest pain
⇒ breathlessness

All patients with clinically suspected tuberculosis should submit three samples of sputum for microscopy and should have a chest x-ray taken and a tuberculin test done.

Note: No chest x-ray pattern is absolutely typical of TB.

Treatment of people proven to have tuberculosis should be guided by the recommended regimens of the National Tuberculosis Control Programme.
Summary

Practices to prevent MTCT should be part of general care. Integrated care will not only help HIV-positive mothers receive the care they need, it will help to promote good health among mothers who are HIV negative.

In this session, we discussed

⇒ providing information, encouraging voluntary HIV testing
⇒ integrating into existing MCH services the strategies for preventing MTCT of HIV
⇒ giving HIV-infected women family planning options
⇒ planning care for the HIV-infected woman
⇒ detecting and treating tuberculosis

Practical session

Divide the class into two groups.

Have Group 1 participants develop a checklist for evaluating the use of universal precautions in the labour ward. Have this checklist typed and use it to evaluate the practice of universal precautions in a labour ward in a practical session.

Have Group 2 participants prepare a role-play on counseling an HIV-positive woman about family planning. (See instructions about role-plays in module 4 unit 5, ‘Counseling on safer sex’.

The assignment should take each group 30 minutes for preparation, 5 minutes for presentation and 5 minutes for discussion.
FIGHT AIDS!

REMEMBER THE 4Cs OF GOOD STI MANAGEMENT

COUNSELLING
- empathize with your patient (put yourself in your patient's place)
- dialogue with your patient
- discuss the other 3Cs

COMPLIANCE
Your patient should
- avoid self-medication
- take the full course of medication and not share or keep it
- follow your other instructions

CONDOMS
- proper condom use is the only alternative to abstinence
- give condoms to your patient
- explain and demonstrate the proper use of condoms

CONTACT TREATMENT
Your patient should
- tell all his/her sexual partners to seek medical attention
**MANAGEMENT OF SEXUALLY TRANSMITTED INFECTIONS (STI)**

The chart presents the most common STI syndromes and treatments; for more information consult the national guidelines for control of STI.

**Urethral discharge**
Urethritis, usually caused by gonorrhea and chlamydia

- Examine for discharge
- Discharge present
  - Urethritis Rx and 4Cs
  - Symptomatic Rx
  - If discharge persists after 7 days
  - Refer for investigation
- Discharge absent
  - If discharge persists after 7 days
  - Refer for investigation

**Vaginal discharge or pruritus**
Vaginitis, usually caused by candida and trichomonas. Cervicitis, usually caused by gonorrhea

- Enquire about lower abdominal pain and examine for abdominal tenderness
- No lower abdominal pain or tenderness
  - Vaginitis Rx and 4Cs
  - If no improvement after 7 days
  - Cervicitis Rx and 4Cs
  - If discharge persists after 7 days
  - Refer for investigation
- Lower abdominal pain or tenderness
  - Follow the flowchart for lower abdominal pain

**Lower abdominal pain in women**
PID, caused by gonorrhea, chlamydia and anaerobes. Surgical and obstetrical conditions

- Do abdominal & bimanual examinations
- Abdominal tenderness due to surgical or gynaecological causes
  - Refer for surgical or gynaecological assessment
- Abdominal tenderness or tenderness on moving the cervix
  - Refer for investigations
- No tenderness on abdominal examination
  - Start flowchart again after repeating abdominal examination

**Genital ulcer disease (GUD)**
GUD, usually caused by chancre, syphilis and herpes genitals

- Examine for ulcer
- Multiple vesicles grouped together with a history of recurrence (herpes genitalis)
  - Other GUD
  - Symptomatic Rx and 4Cs
  - If no improvement after 7 days
  - Follow other GUD column
  - If no improvement after 7 days
  - Refer for investigation
- GUD heals slowly. Improvement is defined as signs of healing and reduction of pain. People with HIV infection will be slower in responding to GUD treatment.

**URETHRITIS Rx**
Norfloxacin 800 mg stat OR Spectinomycin 2g IM AND Doxycycline 100 mg BD x 7 days

- If pregnant
  - Norfloxacin 800 mg stat AND Doxycycline 100 mg BD x 7 days

**VAGINITIS Rx**
Nystatin 1 pessary BD x 5 days AND Metronidazole 2 g stat

- If pregnant
  - Amoxycillin 3.5 g AND Probenicid 1 g AND Augmentin 1 tab AND Erythromycin 500 mg QID x 7 days OR Spectinomycin 2 g IM AND Erythromycin 500 mg QID x 7 days

**CEVRICITIS Rx**
Clotrimazole 1 tab intravaginally daily x 6 days

- If pregnant
  - Erythromycin 500 mg TID x 7 days and Benzathine Penicillin 2.4 MU IM stat
  - If Penicillin allergy, use Erythromycin 500 mg qid x 14 days

**PELVIC INFLAMMATORY DISEASE (PID) Rx**
Norfloxacin 800 mg stat AND Doxycycline 100 mg BD x 7 days AND Metronidazole 400 mg BD x 10 days

- If pregnant
  - Erythromycin 500 mg BD x 7 days OR Ceftriaxone 250 mg IM

**REFERENCES**
- Republic of Kenya, National AIDS/STD Control Programme (NASCOP), Ministry of Health, P.O. Box 19361, Nairobi
- PRINTED COURTESY OF STI PROJECT, WORLD BANK IDA CREDIT 2686-KE
- DEVELOPED WITH THE ASSISTANCE OF KENYA BELGIAN STD PROJECT
National STI syndromic management guidelines

**FIGHT AIDS!**

**REMEMBER THE 4Cs OF GOOD STI MANAGEMENT**

- **Counselling**
  - provide an open and honest environment
  - confidentiality
  - discuss possible outcomes
  - encourage the client

- **Compliance**
  - use of barrier methods
  - sexual abstinence

- **Condoms**
  - use barrier methods
  - use condoms
  - use after sexual activity

- **Contact Treatment**
  - notify and treat sexual contacts
  - notify if positive

**MANAGEMENT OF SEXUALLY TRANSMITTED INFECTIONS (STIs)**

1-3-1

**Module 1 — Unit 3 INTEGRATING**

**Family planning for the HIV-positive woman**

- The aim is to prevent unwanted pregnancies.
- There are no contraindications for any commercially available contraceptive.
- Women at increased risk of STIs, especially adolescents, should avoid IUDs.
Family planning . . .

- Non-lactating women should use a reliable birth control method within 2 or 3 weeks of delivery to avoid an unwanted pregnancy.
- Back-up contraception should be given to women on hormonal contraceptives who are being treated with rifampin, anticonvulsant drugs or broad-spectrum antibiotics.

Universal precautions . . .

- Reduce needle-stick injuries.
- Wash hands with soap and water immediately after contact with blood or body fluids.
- Wear latex gloves when expecting exposure to blood or body fluids.
- Cover broken skin or open wounds with watertight dressings.

Universal precautions . . .

- Wear suitable protective apron and eye shield during delivery.
- Cut the cord under the cover of a lightly wrapped gauze swab.
- Dispose of blood-soaked dressings and placentas safely.
- Use disinfectant solution to clean infectious spills.
Universal precautions . . .

- Dispose of needles, surgical blades and other sharp instruments safely.
- Handle unsterilized instruments carefully.
- Educate health workers about procedures for avoiding accidental HIV exposure in the workplace.

Needs of the HIV-infected woman

- Ongoing emotional and psychological support
- Adequate nutrition
- Regular moderate exercise
- Adequate rest
- Avoidance of smoking or excessive ingestion of alcohol

Needs . . .

- Prompt medical attention for illness
- Medical interventions for prophylaxis and treatment
- A positive mental attitude
- Plans for the future
- Legal support
**Tuberculosis: diagnosis**

- Cough that has lasted over 3 weeks
- Sputum production
- Weight loss
- Fever and night sweats
- Haemoptysis
- Chest pain
- Breathlessness

**Summary: integration**

Integrating services means—

- Providing information and encouraging voluntary HIV testing for all women
- Integrating into existing MCH services the strategies for preventing MTCT of HIV
- Providing HIV-infected women with family planning counseling and options
- Caring for HIV-infected women
- Detecting and treating tuberculosis
Unit 4

Care of children born to HIV-infected mothers

by
Dr Dorothy Mbori-Ngacha

with
Dr Ruth Nduati
CONTENTS

Introduction 53
Promotive care 53
Perinatal care 53
Watch out for danger signs 55
Immunizations 55
Care of children born to HIV-infected mothers

Introduction

Children born to HIV-infected women have special needs either because their mothers are frequently unwell or because they are actually infected themselves. They are at a greater risk for illnesses and malnutrition than those born to HIV-negative women. The majority of these children are not infected with HIV. The participants will be expected to acquire knowledge of total care of children irrespective of their HIV status and to provide ongoing support to the family of HIV-exposed children.

Start by discussing with participants what they understand by total care.

Promotive care

The first step in the care of HIV-exposed children is to have a positive attitude towards them. What can health workers do to avoid having a negative attitude towards these children?

Let participants give suggestions and list on a flip chart or a board.

Perinatal care

It is important to recognize that this is a period of high risk for mother-to-child transmission of HIV. Mother-to-child transmission can be minimized:
• Avoid unnecessary artificial rupture of membranes.
• Avoid injuring the baby’s skin or mucous membranes by avoiding
  ⇒ birth trauma
  ⇒ asphyxia
  ⇒ naso-oro-pharyngeal suction
• Minimize the contact a baby has with maternal secretions by
  ⇒ promptly clearing mucus and blood from the baby’s face
  ⇒ handling the cord in a way to minimize maternal–foetal transfusion
    (no milking before cutting, promptly tying the cord and using
    antiseptics to clean the cord until it heals completely)
• Providing the newborn with appropriate care that includes
  ⇒ keeping the baby warm with particular attention to the low-birth-
    weight baby
  ⇒ using feeding methods appropriate for age and maturity, for example,
    tube or cup feeding for preterm baby
• Prevent infection by
  ⇒ avoiding separating mother and baby
  ⇒ counseling mothers on personal hygiene
  ⇒ ensuring that health workers wash their hands between handling
    babies
  ⇒ avoiding crowding and sharing of cots
  ⇒ using clean equipment and utensils

Apply tetracycline eye ointment within half an hour of birth to prevent
ophthalmia neonatorum.

Newborn babies are very vulnerable to infections. It is important that the
health worker and the mother recognize key symptoms of illness in the
newborn.
Watch out for danger signs

- lethargy, irritability, convulsions
- respiratory distress
- prematurity and low birth weight
- jaundice
- refusal to feed
- dehydration

If a baby has any of these conditions, refer or treat quickly to minimize morbidity and mortality.

Feeding and growth monitoring and promotion are critical for the wellbeing of the baby. These topics will be discussed in detail in module 3 unit 3 ‘Infant feeding choices’ and unit 5, ‘Growth monitoring’.

Immunizations

- Ask if any participant has gone through training in the Kenya expanded programme of immunization (KEPI).
- Ask participants to mention available vaccines.
- What is recommended for children born to HIV-infected women?
  - follow the KEPI schedule for hepatitis B, *H. influenzae*, MMR (measles, mumps, rubella), yellow fever
  - other vaccines—follow recommended schedule
- What is the response to vaccinations of HIV-infected children?
• Are any vaccines contraindicated?
  ⇒ if a child is exposed to HIV (mother is HIV positive) do not repeat BCG for non-responders, refer to a senior doctor
  ⇒ give oral polio vaccination according to schedule
• What do you do if child is sick but immunization is due?
  ⇒ mild illness—vaccinate
  ⇒ severe illness—vaccinate on discharge from ward

Children of HIV-infected women should be immunized according to the KEPI schedule.